

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): Device for locally resolved object distance measurement, comprising: ~~[[with]]~~ a frequency shifted feedback radiation source for object irradiation with irradiation that can be used for distance measurement and a position-sensitive object detection sensor, ~~characterized by the fact that wherein~~ the frequency shifted feedback radiation source for object irradiation ~~is configured with~~ includes a means for increasing radiation frequency component beat intensity and the position-sensitive object detection sensor ~~for detection of~~ detects beat intensity from the object and incoming irradiation not from the object.

Claim 2 (currently amended): ~~Device as described in~~ The device of claim 1, ~~characterized by the fact that wherein~~ the means for increasing radiation frequency component beat intensity is configured as a means for non-stochastic increase of radiation frequency component beat intensity and/or

includes an injection light source, in particular an injection laser, wherein ~~it is particularly preferred that the~~ light is injected into a resonator ~~that constitutes that of the~~ frequency shifted feedback radiation source, wherein ~~it is especially preferred that~~ incoming irradiation on ~~[[the]]~~ an amplification medium occurs in the same and wherein ~~it is preferred that~~ the injection light source ~~for radiation or irradiation~~ is configured close to the upper or lower amplification threshold ($G=1$) and/or the ~~injection light source for incoming irradiation from~~ injection light related to the amplification bandwidth of the frequency shifted feedback radiation source is narrowband, in particular a ~~width under 5%, preferably below 1%~~ bandwidth under 5% of the bandwidth of the amplification of the frequency shifted feedback radiation source and/or

the injection light source is configured for incoming irradiation of relevant intensity and/or phase of the light modulated by the optical carrier, in particular for regular modulation

of intensity and/or phase of the injection light and/or is configured for the purpose of performing fluctuating, preferably periodic modulation of intensity and/or phase with the time, in particular the ~~inject~~ injection light source is configured in such a way that at least temporally a linear modulation frequency variation occurs, wherein it is preferred that the injection light source is configured for that purpose, a modulation that is obtained whose frequency lies in the magnitude order and/or close to the distance determined using the radiation source and ~~[[the]]~~ a given chirp rate from the frequency shifted feedback radiation source, whereby it is preferred that ~~the frequency shifted feedback radiation light source is a laser and~~ an internal optic fiber in the resonator is used as an amplification medium.

Claim 3 (currently amended): ~~Device as described in~~ The device of claim 1, wherein the frequency shifted feedback radiation source is a laser and the means for increasing radiation frequency component beat intensity is a frequency modulated seed laser irradiating a seed light into the first mentioned laser, ~~wherein a means is used~~ including means to adapt the frequency of the seed laser frequency modulation to specific distances.

Claim 4 (currently amended): ~~Device~~ The device according to claim 3, ~~characterized by the fact that there is a~~ including means to change the seed frequency gradually, ~~preferably in steps,~~
—— ~~wherein it is preferred that the means~~ and said means to change the seed frequency is configured to keep the seed frequency constant for a specific measurement time T and/or wobble by a mean value of a respective seed frequency value, ~~in particular~~ by a frequency deviation sufficient for avoiding distance gaps and/or to vary the seed frequency modification upon repeated passes, ~~in particular~~ through systematic frequency resolution decreases in repeated passes.

Claim 5 (currently amended): ~~Device~~ The device according to claim 4, ~~characterized by the fact that a filter is used for filtering the~~ including a filter for filtering beat intensity related ~~object~~ object detection sensor signals detected at the object detection sensor.

Claim 6 (currently amended): ~~Device~~ The device according to claim 5, ~~characterized by the fact that the~~ including means for filtering of the filtered alternating signal portions ~~including to that are configured by in the range of~~ the seed frequency and/or ~~narrowband~~ a narrow band around the seed frequency.

Claim 7 (currently amended): ~~Device~~ The device according to claim 1, ~~wherein there is~~ including a signal amplification for conditioning ~~[[the]]~~ object detection sensor signals amplification ~~step behind the filtering step, with a configuration according to one of the two preceding claims~~ behind a filtering stage using an amplification stage behind the ~~filter~~ filtering stage, whereby ~~in particular~~ at least one control loop and/or circuit is used to set a specific signal condition, in particular a specific amplification.

Claim 8 (currently amended): ~~Device~~ The device according to claim 1, ~~characterized by the fact that~~ including a stage for determining the distance using ~~[[the]]~~ an object detection sensor signal signature ~~is used~~ depending on ~~[[the]]~~ seed frequencies.

Claim 9 (currently amended): ~~Device~~ The device according to claim 1, ~~characterized by the fact that the~~ wherein a stage for determining distance using the object detection sensor signal depending on the seed frequencies of a seed laser is configured for distance measurement for purposes of achieving a maximum value of ~~[[the]]~~ an object detection sensor signal with seed frequency modification prepared as necessary and/or for purposes of an effective value, ~~in particular a real effective value, in particular~~ as received through rectification or deep pass filtering, of the object detection sensor signal with seed frequency modification prepared as necessary and/or for purposes of an effective value, in particular in a frequency window ~~[[by]]~~ around the seed frequency and/or for purposes of the strength of a seed frequency component in the object detection sensor signal.

Claim 10 (currently amended): ~~Device~~ The device according to claim 1, ~~characterized by the fact that~~ wherein a stage for modifying the seed frequency ~~along with the~~ of a seed laser over time is used and an object detection sensor signal evaluation stage as a distance-related measurement value determines a value representative of a time for achieving a preset object

signal signature, ~~in particular~~ through measurement of the time it takes to achieve a threshold and/or maximum value,

for which ~~in particular~~ an analog maximum hold circuit for detecting the temporal signal course with an allocated digital register for recording a value, in particular a seed frequency related value, ~~in particular~~ a sweep time and/or counter value,

~~further preferred in particular~~ with a circuit for establishing the value to be recorded dependent on achieving an analog threshold and/or maximum value ~~is used~~ and/or for which a directing stage for directing ~~[[the]]~~ a frequency-dependent object detection sensor signal signature is used, ~~in particular~~ during simultaneous, noise-reducing observation of a signal comparator output.

Claim 11 (currently amended): ~~Device~~ The device according to claim 1, ~~characterized by the fact that~~ wherein the position-sensitive object detection sensor is configured for simultaneous and/or temporally close consecutive sequential receiving and/or evaluation of ~~irradiation from receiving the~~ reflected irradiation from the object on the one hand, and other light from the object on the other hand,

wherein ~~in particular~~ the frequency shifted feedback radiation source is configured to emit in infrared and/or the position-sensitive object detection sensor is configured to further be used to receive visible light as different light from the object, whereby an evaluation of ~~[[the]]~~ an object detection sensor signal for the received reflected irradiation and other light after various signal conditioning can occur.

Claim 12 (currently amended): ~~Device~~ The device according to claim 1, ~~characterized by the fact that~~ wherein the position-sensitive object detection sensor is configured for pixel-by-pixel detection of irradiation ~~from the received reflection of~~ reflected from the object ~~irradiation~~ and/or other light from the object,

whereby the position-sensitive object detection sensor includes a multi-pixel chip for a multi-color detection with a color filter model and/or uses separate multi-pixel elements for light and /or irradiation in different wavelength ranges that are illuminated via a beam splitter in the object imaging beam path, whereby an image correction stage is used to guide image matching.

Claim 13 (currently amended): ~~Device~~ The device according to claim 1, ~~characterized by the fact that wherein~~ the position-sensitive object detection sensor is configured for pixel-by-pixel detection of irradiation ~~from receiving irradiation~~ reflected back from the object and/or light from the object uses a number of evaluation units, ~~specifically per pixel, per pixel~~ to increase the evaluation and/or image repetition frequency.

Claim 14 (currently amended): ~~Process~~ A process for locally resolved object distance measurement ~~[[with]] including~~ a frequency shifted feedback radiation source for object irradiation with irradiation that can be used to measure distance and a position-sensitive object detection sensor, ~~characterized by the fact that wherein~~ the radiation frequency component beat intensity increases at the frequency shifted feedback radiation source for object irradiation via ~~the received mass coming out through~~ stochastic fluctuation of the frequency shifted feedback radiation source and the beat intensity from incoming irradiation both from the object and not from the object is ~~determined~~ used as a distance-indicating signal.

Claim 15 (currently amended): ~~Device as described in claim 2~~ The process of claim 14, wherein the frequency shifted feedback radiation source is a laser and ~~the means for the~~ increasing radiation frequency component beat intensity is achieved by means of a frequency modulated seed laser irradiating a seed light into ~~[[the]] a~~ first laser, wherein ~~a means is used to adapt~~ the frequency of the seed laser frequency modulation is adapted to specific distances.

Claim 16 (currently amended): ~~Device~~ The device according to claim 2, ~~wherein there is~~ including a signal ~~amplification~~ for conditioning ~~[[the]]~~ object detection sensor signals ~~amplification step behind the filtering step, with a configuration according to one of the two preceding claims~~ behind a filtering stage using an amplification stage behind the ~~[[filter]]~~ filtering stage, whereby ~~in particular~~ at least one control loop and/or circuit is used to set a specific signal condition, in particular a specific amplification.

Claim 17 (currently amended): ~~Device~~ The device according to claim 3, ~~wherein there is including a signal amplification for conditioning [[the]] object detection sensor signals amplification step behind the filtering step, with a configuration according to one of the two preceding claims behind a filtering stage~~ using an amplification stage behind the ~~[[filter]] filtering stage~~, whereby ~~in particular~~ at least one control loop and/or circuit is used to set a specific signal condition, in particular a specific amplification.

Claim 18 (currently amended): ~~Device~~ The device according to claim 4, ~~wherein there is including a signal amplification for conditioning [[the]] object detection sensor signals amplification step behind the filtering step, with a configuration according to one of the two preceding claims behind a filtering stage~~ using an amplification stage behind the ~~[[filter]] filtering stage~~, whereby ~~in particular~~ at least one control loop and/or circuit is used to set a specific signal condition, in particular a specific amplification.

Claim 19 (currently amended): ~~Device~~ The device according to claim 5, ~~wherein there is including a signal amplification for conditioning [[the]] object detection sensor signals amplification step behind the filtering step, with a configuration according to one of the two preceding claims behind a filtering stage~~ using an amplification stage behind the ~~[[filter]] filtering stage~~, whereby ~~in particular~~ at least one control loop and/or circuit is used to set a specific signal condition, in particular a specific amplification.

Claim 20 (currently amended): ~~Device~~ The device according to claim 6, ~~wherein there is including a signal amplification for conditioning [[the]] object detection sensor signals amplification step behind the filtering step, with a configuration according to one of the two preceding claims behind a filtering stage~~ using an amplification stage behind the ~~[[filter]] filtering stage~~, whereby ~~in particular~~ at least one control loop and/or circuit is used to set a specific signal condition, in particular a specific amplification.

Claim 21 (new): The device of claim 1, wherein the means for increasing radiation frequency component beat intensity is configured as a means for non-stochastic increase of radiation frequency component beat intensity and/or

includes an injection light source, in particular an injection laser, wherein light is injected into a resonator of the frequency shifted feedback radiation source, wherein incoming irradiation on an amplification medium occurs in the same and wherein the injection light source is configured close to the upper or lower amplification threshold ($G=1$) and/or the injection light related to the amplification bandwidth of the frequency shifted feedback radiation source is narrowband, in particular a bandwidth under 5% of the bandwidth of the amplification of the frequency shifted feedback radiation source and/or

the injection light source is configured for incoming irradiation of relevant intensity and/or phase of the light modulated by the optical carrier, in particular for regular modulation of intensity and/or phase of the injection light and/or is configured for the purpose of performing fluctuating, preferably periodic modulation of intensity and/or phase with the time, in particular the injection light source is configured in such a way that at least temporally a linear modulation frequency variation occurs, wherein it is preferred that the injection light source is configured for that purpose, a modulation that is obtained whose frequency lies in the magnitude order and/or close to the distance determined using the radiation source and a given chirp rate from the frequency shifted feedback radiation source, whereby it is preferred that an internal optic fiber in the resonator is used as an amplification medium.